Green Paper stresses public's role

The people of Ontario are given a large part to play in determining the future of their environment in a proposal announced late in September by Environment Minister James Auld.

A Green Paper on Environmental Assessment, released at a Queen's Park news conference, stresses the importance of public information and public involvement in assessing development proposals in terms of their impact on the environment.

"Any system of environmental assessment has its advantages and disadvantages. These are discussed to some extent in the Green Paper and they will be discussed and considered, we hope, by the public before any final structure is established," Mr. Auld said.

"You will notice that all the proposals put before you involve public participation in the process of environmental planning. We want the broadest possible public participation in preparing the form environmental impact assessment is to take in Ontario," he told reporters.

Public participation is just one of the basic principles, Mr. Auld said. Tied to this is the principle that environmental assessment documentation should be available to the public. Limited exemptions to this rule would be made when disclosure is not in the public interest or when it would cause escalation of the cost of land or services or compromise the confidentiality of industrial processes.

Another principle is that the cost of the environmental assessment should be charged to the project.

And the most basic assumption in the Green Paper, Mr. Auld said, is the belief that there is a genuine need for environmental assessment.

With some proposals, it is relatively easy to decide the need for comprehensive study, but there is a broad gray area in which discretion must be exercised. The limits of this discretionary power and the authority to exercise it must be established in any system we establish.

He said the final system would be implemented in phases.

The Ministry of the Environment is inviting comment on four optional systems set out for discussion in the Green Paper. The deadline for public submissions is January 1, 1974 Mr. Auld said.

FOUR OPTIONS

The four options outlined are:

A. An independent hearing agency would be established to deal with environmental assessment and an assessment document on a given project would be prepared by the Ministry of the Environment staff while the proponent of the project is carrying out conceptual planning.

While other government agencies would be consulted in preparing the assessment document, review would be left to the general public as part of the hearing process.

All documentation would be available for public review and the hearing agency would make a decision on each project based on the matters raised at the hearing.

Provision would be made to appeal this decision to Cabinet.

(Continued page 2)

ENVIRONMENT ONTARIO **LEGACY**

VOLUME 2, NO. 5 "A better Ontario for tomorrow's generations" SEPT/OCT., 1973

Antacid program for Sudbury lakes

An Environment Ontario crew mixes neutralizing material into Middle Lake.

This summer a major study began in the Sudbury district to determine the impact of atmospheric emissions from local smelting operations. Early in the program it was found that many lakes had become acidic, with a resulting decline in the fish population.

Another important finding was a wide variability in the water quality of the lakes. The effects of sulphuric acid inputs in the lakes appear to be modified considerably by natural factors, particularly the geology of the watersheds.

MINISTRY TOUR

On September 28th, Environment Minister James Auld led a party of Ministry officials, local M.P.P.'s and the media to get a first hand look at the project. The Minister's party toured two affected lakes with Ministry biologists. Nels Conroy, regional biologist for the Ministry in Sault Ste. Marie tested conditions on Nellie and Bassoon lakes, both of which lay in a south-westerly direction from Sudbury.

Nellie Lake is acidic and does not support a normal fish population, while Bassoon is alkaline and the normal fish life exists. The reason for this variability is the ability of some lakes to neutralize an input of acidity. Nellie is imbedded in lorraine quartzite which is insoluble and therefore supplies no natural neutralizing agents. Bassoon, on the other hand sits on a limestone bed and this mineral provides a natural buffering action.

These facts led Ministry biologists and chemists to believe that affected lakes could be restored by the addition of a neutralizing agent which would achieve the same end as the natural process working on lakes like Bassoon. Mike Michalski, the biologist in charge of the study, supervised a research program to test the feasibility of such a restoration project.

In essence, the program involves adding a buffering agent, in this case calcium hydroxide, to the lake to reduce the acidity (causing no adverse effects to the waters). Just as we take an antacid for stomach discomfort, the lakes need similar help.

POSITIVE SIGNS

After just a few days of adding the buffering agent the pH of the lake rose. (pH is a measure of acidity. Below 7 pH units indicates acidity; a pH reading of 7 is neutral and above 7 is alkaline. Nellie Lake for example had a pH of 4.8 indicating acidity, while Bassoon Lake's pH was 7.5 to 8.0).

Mike and his crew were happy with these initial results but he pointed out: "We still have to find a lot of a answers to this whole problem of acidity in the lakes. We're continuing an intensive monitoring problem and we're finding a great number of factors affecting water quality which we'll have to deal with at some future date. Right now we are pleased with the results, but we have to keep testing for a while yet."

Nels Conroy added, "We're breaking new ground with this type of work. Although lakes have been neutralized before, it has never been attempted in an area where the geology makes the waters so sensitive to acid input. Our findings will have a significant effect on our future programs; we're just beginning a very major long term study and restoration program."

MANY TESTS

Mr. Auld and his guests were very pleased with the program and saw it as important undertaking. Mr. Auld said, "many people within our Ministry have been concerned about the condition of these lakes for a long time.

We've been working on the ground monitoring the lakes, testing snow and rainfall, and taking a close look at the effects of the fallout on vegetation. Our air management staff have been compiling data from this whole area in aircraft up to 100 miles from the source. All this information is being analyzed to help us find the most effective solution to a difficult problem."

"Grassy lakes"

Weeding the Kawarthas

Champlain's diary tells us of his encounter with "very grassy lakes" in what we know today as the Kawarthas.

The problem of excessive weed growth in many Ontario waters is becoming an increasing problem for those who enjoy the recreational and water sport features of Ontario's lakes and rivers. This summer, the Ministry of the Environment began a weed harvesting program to determine the feasibility of removing these aquatic plants mechanically to improve the recreational potential of our lakes.

Mike Michalski, Glen Owen and Ivy Wile, Ministry biologists, conducted a pilot program at Chemong Lake, north of Peterborough, to remove enough plant material to make boating, fishing and swimming possible.

Mechanical harvesting was favoured over chemical additives because of the less complicated effects on the lake's biology. The biology staff is keeping a very close watch on the effect of the weed removal, as they know there is a close relationship between the weeds and fish life in the lake. By clearing channels and shoreline areas, the cottager can be served and the fish population protected.

On September 13th, Environment Minister James Auld along with his Deputy Minister, Mr. Everett Biggs, David Caverly, Assistant Deputy Minister, and John Neil, Director of Water Quality, visited Chemong Lake with local media people. The party had a close-up look at the whole operation.

After viewing weed-infested areas and sections cleared earlier by the huge underwater harvester, the Minister's party boarded the transporter unit and got a look at the cropping procedure. The harvester craft is capable of cutting weeds to a depth of five feet. Every 10 minutes it transfers about three tons of weeds to the transporter unit which carries the load to trucks on shore which in turn deposit the weed on farm fields as a useful soil additive.

The operation is responsible for removing the nutrient equivalent in weeds to the amount of nutrients added to the lake from human sources. In this way the natural, long standing biological balance in the lake is preserved while people can enjoy their recreational activities.

IJC Report:

Lakes quality concern

A note of cautious optimism set the tone for the International Joint Commission's first annual report under the Great Lakes Water Quality Agreement signed by Prime Minister Pierre Elliot Trudeau and President Richard Nixon last year.

"On the basis of the available information, it appears to the commission that further degradation of water quality in the Great Lakes may now have been slowed down in some respects. However, there is not yet available a scientific basis to indicate in precise terms the extent of improvement, except for some parameters and for some areas."

The report, released early in September, mentioned a reduction of phosphorus concentrations in the Detroit River between 1971 and 1972 and calculated reductions of phosphate loadings to Lakes Erie and Ontario of 11,000 tons and 3,000 tons.

The commissioners reported that the tempo of remedial activity on the Great Lakes has increased appreciably and they urged the two nations to positive action to see that this accelerating momentum is not lost.

LOCAL PROBLEMS

Lakes Superior, Michigan and Huron are in good condition in their central deeper areas, according to the report. But it mentioned local problems affecting water uses, particularly at Silver Bay, Minnesota, Thunder Bay and Georgian Bay, Green Bay, Wisconsin, the Chicago-Calumet area of Illinois and Saginaw Bay, Michigan. Commission members were also concerned about the discovery of asbestos-like fibers in the drinking water drawn from Lake Superior in the Duluth area and about contamination levels found in salmon, trout and other fish taken from Lake Michigan.

According to the report, Lake Erie is still the most polluted of the Great Lakes, with continuing problems of oxygen depletion because of excessive nutrient loads. Local problems were noted along the U.S. shore from Toledo to Buffalo and Cleveland area and the Detroit River were singled out as continuing sources of pollution to the lake.

The Niagara River was the main contributor to the impairment of Lake Ontario mentioned, because of its major loads of phosphates and total dissolved solids.

Waste discharges into the connecting channels of the Great Lakes from municipal and industrial sources continue to impair water quality, the report noted. It mentioned intermittent problems with floating oils and scum, discoloration, solids and lingering localized pollution from phenols, bacteria and other pollutants. The St. Mary's, Niagara, St. Clair and Detroit Rivers, downstream from heavily populated and industrialized centres were singled out.

IMPROVEMENTS

Recent major grants for treatment works in the U.S.—$80 million in Detroit and $47.4 million in Niagara Falls, New York, for example—will result in significant improvements, the report predicted.

In Ontario, treatment facilities are basically paid for by a community's ratepayers with assistance from provincial grants and federal-provincial loans, which are in part forgivable. This constitutes, in effect, a grant. In the U.S. the development of major treatment works is more heavily dependant on grants from the federal government in Washington.

Ontario's system of development is one of the factors that has given the province a head start on municipal water pollution control since the Ontario Water Resources Commission began work in 1957.

The heavy reliance, in the U.S., on federal aid has given rise to some concern in Ottawa and at Queen's Park about the pace at which the U.S. share of work on Great Lakes water quality is proceeding.

The IJC report noted that the U.S. obligations under the water quality agreement may be met as far as municipalities are concerned only if federal allotments in the next two years are larger than those of 1973.

While there are indications of progress from industrial effluent control programs, much more remains to be done to achieve satisfactory water quality in the lakes, the commission said. The report recommended accelerated enforcement of industrial waste treatment programs.

PHOSPHORUS

Limits on phosphorus contents in detergents in Canada and in some states and vigorous programs for phosphorus elimination at treatment plants have already resulted in reduced loadings of these compounds to the lower lakes, the report noted.

The report mentioned that Canada and the U.S. have failed to meet the target date of April 15, 1973 for adopting compatible regulations controlling waste discharges from pleasure craft and commercial vessels. The commission urged the provision of adequate pump out facilities to permit this control and recommended that the two governments reach agreement on compatible regulations by December 31, 1973.

Briefly: Waterbeds and Highways

OUT OF SIGHT . . .

International Nickel Company of Canada Limited, to conceal some of its less scenic operations from the passing tourist, is building up a 15-foot bank along highway 17 west.

The ridge now under construction beside the company's Copper Cliff smelter will be grass-covered and planted with trees, a company spokesman said. It's the first phase of a program to beautify the trans-Canada highway from Kelly Lake road to Industrial road.

EXTREME CONDITIONS—EXTREME MEASURES

The government of Ontario recently allotted over $130,000 to remove part of Happy Valley, a community located close to a large smelting operation near Sudbury.

The government funds will be in addition to those provided by Falconbridge Nickel Mines Ltd., owner of the smelter.

Emissions from the plant often have enveloped the community, forcing shutdowns of operations.

A total of 23 houses will be demolished and the families located in new residences.

A company spokesman said the total cost will be "in excess" of $200,000, but a final figure is not yet known.

COAL USED FOR HEAVY METAL REMOVAL

Coal from British Columbia's Hat Creek deposit has proven between 95 and 99.6 per cent effective in removing heavy metals from experimental discharge. Dr. Lionel Coulthard, a scientist at the University of British Columbia, has been experimenting for five months with the technique, which shows promise for future use in the treatment of waste water in areas where there is a high metal content in effluents.

WATER RESOURCES

Future planning for the use of water resources must include consideration of impact on the watershed, says Dr. Robert Newbury, University of Manitoba, hydrologist. He told the Canadian Water Resources Association that in Manitoba the examination of alternative uses of water resources and public participation in planning are being neglected.

Dick Docking of Vancouver, another speaker at the conference, supported Dr. Newbury:

"The land and water are indivisible, and those who would treat a river as so much plumbing to be manipulated and its water as a commodity to be bought and sold like carloads of wheat, simply have not comprehended this fundamental fact."

WATER BED

The City of Prince George, B.C., could have the world's largest water bed.

It's a three-quarter acre of reinforced synthetic rubber laminated with nylon webbing that forms a floating roof protecting the city's three million gallon reservoir.

The 8000 pound, $65,000 roof was designed in conjunction with Vancouver engineer Jim Collins as an experiment instead of the regular reservoir roof on floats.

Committee concerned over control programs

"Canada has spent $1.2 billion (since 1965) and can reasonably expect to meet their deadline by December 31, 1975. The United States has a much larger task ahead. Progress is very much in evidence but its comparative effort candidly falls below that of Canada".

These were the comments of John W. Beckman, past Chairman of the Interstate Legislative Committee on Lake Erie, a group made up of legislators from the states (New York, Ohio, Pennsylvania and Michigan) bordering on the lake. The remarks were made at a press conference in Toronto on September 7 after the committee held one of its six-times-a-year meetings. Stressing that the situation was definitely improving for the lake, he further stated that since April, 1972, a total of $627 million worth of new projects had been let by the U.S. government in the Great Lakes Basin; among them $80 million for the Detroit area, $24 million for Cleveland, and $47 million for Niagara Falls. However, Beckman said the United States is going to have to "dramatically accelerate" its progress if it hopes to meet the December, 1975 target at which all the planned projects will be under construction. If this is not done, it will mean that the U.S. will not live up to the agreements made with Canada.

"This is a major source of concern to this organization" he said, "and we feel we have the ability to move faster than the federal pace will permit us".

PHOSPHATE REMOVAL

Beckman said that the progress made in phosphate removal programs has exceeded expectations on both sides of the border, and the condition of Lake Erie has slowly improved over the last few years. He cited certain types of fishing in the process of revival, and that water clarity of the lake had been dramatically improved.

The magnitude of industrial discharges exceeded, however, what was originally envisioned.

"We feel that the financial resources needed to do the job might actually equal that in the sewage treatment area. Again, Canada appears to be ahead of the United States in this area.

Mr. Beckman noted that progress had been made over the control of wastes from private pleasure craft (holding tank and pump out facilities now are quite general) but there still is much to be done about commercial foreign shipping using the great lakes.

"There doesn't even seem to be agreement between the two countries as to exactly how this problem can be solved", he said. The problem will again be discussed at the Committee's next meeting in October, to be held in New York State.

JOHN W. BECKMAN

Green Paper outlines assessment methods

Continued from page 1

B. This system would involve the creation of an independent Environmental Assessment Commission with its own staff structure.

The originator of the project would prepare the environmental assessment document and redraft a final version of this document to incorporate the comments of the commission staff who review the draft proposal. Again the appropriate government ministries would be asked to contribute to this proposal review.

Public hearings would be held at the discretion of the commission and the commission would make a final decision on approval of the project.

C. This system would involve the preparation of a preliminary assessment by the originator of the project. He could be required to amend this after the Ministry of the Environment staff review the document and consult other government agencies.

The public would be notified when the final assessment is filed and pertinent documents would be available for public scrutiny. Public hearings would be held by the Environmental Review Board if deemed necessary by the Minister of the Environment.

The Minister, basing his decision on the recommendations of the review board would approve the project, approve it with changes or recommend refusal to Cabinet.

D. Under this system, the government would identify the projects requiring environmental assessment and public hearing and appoint a commission of inquiry for each. The commission would hire a consultant to prepare the assessment document and hold hearings with all documentation available for public perusal.

The commission's recommendations would go to Cabinet for a final decision.

D.S. Caverly heads hearing board

David S. Caverly, 52, has been appointed the first full time chairman of Ontario's Environmental Hearing Board, Premier William Davis announced in September.

Mr. Caverly is a career civil servant who has been deeply involved in environmental work in Ontario from its very beginnings. He leaves his post as assistant deputy minister in charge of water management for the Ontario Ministry of the Environment to become the hearing board's chairman.

Former chairman John Root, M.P.P. for Wellington-Dufferin will continue as a member of the board.

The Environmental Hearing Board conducts public hearings on the construction or expansion of water and sewage treatment facilities and waste disposal sites under the authority of The Environmental Protection Act. It will continue in operation until a new enviornmental assessment agency is established.

Environment Minister James Auld, in a government green paper recently, announced the intention to set up such an agency.

Mr. Caverly was born in Aylmer and attended local public and high schools. He received a B.A. Sc. in Civil Engineering in 1944 and a M.A. Sc. in Public Health Engineering in 1946 from University of Toronto.

He joined the Ontario Department of Health's sanitary engineering division as a district engineer and in 1949 was assigned to head office in Toronto in an administrative role.

D. S. Caverly

In 1957, when the Ontario Water Resources Commission was formed, Mr. Caverly was one of the Health staff transferred to the new agency to develop a comprehensive water management and pollution control program for the province. He was appointed supervisor of sewage works.

In 1958, when the OWRC established a division of plant operations to supervise projects built by the commission, Mr. Caverly became its first director.

Three years later, he was appointed assistant general manager and in 1963, he became general manager, a position he filled until the OWRC merged with the Department of the Environment in 1972 to become the Ministry of the Environment. With the formation of the new Ministry, he became assistant deputy minister in charge of water management.

Now living in Toronto, Mr. Caverly is married and has one daughter.

In announcing Mr. Caverly's new post last week, Premier Davis stressed the importance of sound environmental management: "Ontario's natural beauty is one of our most precious resources and today's generation has a responsibility to protect, conserve and manage this resource, not only for its own well-being but also for that of future generations.

There are no easy answers to what is the most appropriate environmental policy and we must be constantly aware that some courses open to us for greater environmental protection could result in a slower growth for our standard of living," Mr. Davis said.

"For some the progress may not be fast enough. For others, especially those affected by the disrupting economic effects of the application of higher environmental standards, the rate of change may be too great." Mr. Davis said. "A wise government must tread the course of reason among the points of view."

The Premier said that, aside from such widely publicized subjects as garbage disposal and the treatment of effluent from factories, there is a great deal each individual can do to preserve his or her environment. "Our own individual sense of responsibility and discriminating selection of products and their use can be the most useful way of helping to keep Ontario beautiful."

Brampton recycles

More than 170 tons of newspapers have been collected in Brampton over a thirteen week period. Their collection is part of the Ministry's study of recycling methods.

Ministry collection crews, following the same routes as the garbage trucks, pick up and tabulate all newspaper and other newsprint wastes which have been bundled separately from the garbage. At present they are collecting from households only.

The project, originally intended as a summer one has now been extended to December 21st.

"This extension will give us a broader spectrum of information", said Wes Williamson, director of the Ministry's waste management branch. "We found the amount of paper collected dropped off noticeably during July and August; we would like to determine whether this can be attributed to people being on vacation or if there is some other cause."

The decrease ranged from 57 tons in June, 48 tons in July and 50 tons in August.

Ministry of the Environment machinists Norm Strutt (left) and Ernie Swabey show Andy Matwichuk, of training and licensing, the fine points of the working model sewage treatment plant he designed and they built for Ministry training programs.

ENVIRONMENTAL STUDIES:

See a treatment plant

By DAVID ALLEN
Educational Resources Coordinator

Today in Ontario each individual uses approximately 100 gallons of water. For many, the possibility of one day turning the tap and receiving water which is anything but clear, colourless, odourless and tasteless is very remote. Without proper water management the pollution of our water sources can be a very real fact.

Water, nature's most abundant natural resource covers over three fifths of the earth's surface. Unfortunately, only a very small proportion of this amount is available for our use. Of the world's supply of water, 97% is ocean salt water and 2% is held in ice caps and glaciers. Underground reservoirs account for 0.6% with 0.3% held in the atmosphere.

Our use of water whether it be for consumptive or non-consumptive purposes in many cases changes its quality. It is this observation of a change in quality that can be the basis of a very interesting unit of study for both elementary and secondary schools.

As part of the study a tour to one of the many sewage treatment plants located in every city of Ontario should be made. By following the passage of the sewage from the time it enters the plant to the point where it is discharged into a river or lake, the changes in the water quality may be studied. To assist students and teachers to understand the processes involved in treatment operations, two booklets "Water Pollution Control Plant Operation" and "Water Treatment Plant Operation" have been prepared by the Ministry and are available for distribution.

Teachers interested in arranging a tour of a treatment plant at one of the 133 Ministry plants or the 151 municipally run facilities, should contact the Educational Resources Coordinator at the Information Services Branch of the Ministry.

Lake Erie shows improvement

The state of Lake Erie is still serious, but the latest signs according to the Canada Center for Inland Waters at Burlington, Ontario show that there are some signs of improvement and stabilization.

John Neil, director of the water quality branch of the Ministry of the Environment, says there are signs that the level of oxygen depletion in the lake is lower than it has been in previous years. An International Joint Commission study in 1969 pointed out the great drop in oxygen in the lake, and its future fate if the process was not reversed. Erie is the shallowest of the Great Lakes, and has suffered due to tremendous inputs of nutrients such as phosphorus and resultant algae bloom. In dying and decomposing, the algae have used up the lake's oxygen at an ever-increasing rate. This, in turn, caused a drop in fish populations and it was generally accepted that the far western end of the lake was for all intents and purposes biologically dead, except for the lowest life forms such as blood worms and coarse fish.

In recent years the Ontario government has instituted a program of new sewage treatment plant construction and improvements to older plants. Now, the Ministry of the Environment has begun a phosphorus removal program, and by the end of this year, it's expected that 90 per cent of the phosphorus in municipal wastewater will be removed.

TREATMENT

The key to the lake's eventual return to health will be the willingness of jurisdictions on the American side to act with their own treatment programs. Lately, there have been legislative holdups due to political infighting at the various levels of government, but it's hoped these will be resolved in time enough to get these urgently-needed programs underway.

Lake Erie can't wait.

Littering costs

Seven Canadian provinces and one territory report spending $2,107,652 on highway litter clean-up and maintaining litter receptacles along highways during 1972.

In addition, millions of dollars are spent each year by Canadian taxpayers to clean litter from parks, playgrounds, school grounds, city streets and other public property.

Ontario topped all provinces polled and spent one million dollars on highway clean-up in 1972, British Columbia came second with $500,000 and Alberta third with $164,792. No statistics were received from Quebec, Prince Edward Island or the Northwest Territories and Saskatchewan reported that statistics were not available.

All provinces, with the exception of Newfoundland, Nova Scotia, and Ontario, reported that they utilized litter receptacles along roadsides.

RECEPTACLES

British Columbia reports that their novel "frog-head" litter receptacle which replaced their "Garbage Gobbler" does reduce littering. Manitoba too feels that littering is reduced through their innovative "Orbit" shaped receptacles through which travellers are asked to "Put your garbage in Orbit".

Nova Scotia and Ontario have discontinued the use of roadside litter receptacles due to the danger of highway traffic accidents as cars move in and out of traffic to stop at receptacles. Receptacles, in both provinces, are placed along existing roadside picnic sites and parks. Nova Scotia has placed a heavy emphasis on a program of education, claiming a decrease in highway clean-up costs from $250,000 in 1971 to $135,000 in 1972.

LEGACY, SEPT./OCT. 1973

Rapping – an energetic environment

A freckled student concentrates on a formal statement (above) while other young people relax and rap with Earl Werner (below) about cars.

This is the Straight Goods.

A student: "Can't you just go up there and say to INCO, 'Now, let's forget all about all the garbage. Either you do this by next year or else shut down or we'll take you over'?"

Environment Minister James Auld: "Yes, we could do that and they would shut down.

This is the very serious problem that faces this Ministry all the time. There are, what, 22,000 people that work at INCO and Falconbridge. That supports a community of something over 100,000. There is no known way to meet the current standards with the tonnages that are being processed of that kind of ore which is a very high sulphur ore.

. . . It is true. We could enforce the standards and we would close them down."

The student: "I know it's a problem, Mr. Auld, but I'm saying what's going to happen with the tourist industry, our fishing and our resources . . . ?"

Mr. Auld: "The tourist industry, and I know something about it because I was in it for some time, has been increasing substantially around there to the point where some of the people are complaining that that's what's affecting the fishing."

That's Straight Goods III—from August 26 to August 29, a dialogue on environmental and energy issues between high school students and a roster of resource people that included cabinet ministers, technical experts, industrial executives and educators.

There were 210 student delegates and about 60 resource people involved in the seminar at the University of Western Ontario. Ontario's Ministry of the Environment and the university were co-sponsors of the event.

It was the third annual conference. The first, in Sudbury, was co-sponsored by Laurentian University and the Ministry and the second, in Kingston, involved Queen's university.

At Straight Goods III, students lived, worked, argued and enjoyed themselves on campus at Western for the conference. The Ministry picked up the bill for bus fare greater than $35, and for most of the student delegates, the rest of the travel and accommodation costs were paid for by their schools.

But some of the delegates paid their own way to attend.

MIXED REACTIONS

Their reactions to the conference were mixed. A handful listened to John Robarts, former Premier of Ontario open the conference and to sessions with Mr. Auld and Energy Minister Darcy McKeough and dismissed the conference as "a political snow job."

But most of them cheerfully challenged and probed the statements of the two Cabinet ministers in lively question sessions.

Mr. McKeough: "Between nuclear power and between the reserves which we have in the oil sands and still in natural gas in the frontier areas, as a country we should be self-sufficient for as long as any of us can see."

Student: "How long do you forsee the oil fields lasting?"

Mr. McKeough: "Well, at the present rate and with the present reserves, not very long. The present oil fields, I think the life index is something like seven or eight years. Beyond that we have what may be found on the east coast, in the arctic and then . . . Oh, I don't know how many years supply there are estimated to be for Canada—two or three hundred—in the oil sands."

Student: "If indeed we have the technology to remove the oil from the oil sands, using an exponential rate of growth . . . I think a conservative estimate is more like 60 or 70 years . . ."

DEBATE

The debate continued—on conservation, lifestyle, the growth ethic, atomic energy, and as other speakers and panelists stepped to the hot seat, automobiles, population control, development and legislation among other issues.

One of the legislative issues was carried through after much debate in one of the student resolutions for government action—a request for an environmental bill of rights.

Gar Mahood of the Canadian Environmental Law Association criticized Ontario's Environmental Protection Act because it did not permit legal action against a polluter by persons unaffected by his pollution.

Mr. Auld said Environment Ontario has considered such legislation. One concern, he said, was that this might lead to frivolous actions that could tie up the courts and interfere with abatement progress.

And both viewpoints found adherents among the student delegates.

There were other speakers, with other issues.

Peter Middleton, Pollution Probe, University of Toronto: "You can't separate Ontario's problems and Canada's problems ultimately, from the world's problems . . . as much as we might like to. We're talking about resources, we're talking about a world picture. If you're talking about energy, you're talking about world forces . . . you're working with or against the greatest, most powerful forces in the world—the large oil monopolies and oligopolies."

Norman Pearson, University of Western Ontario: "So far the metropolitan center is one of the best answers man has found to the problem of the standard of living and equality of opportunity. It raises immense environmental difficulties, but we will have to learn how to manage them and how to change the form of our metropolitan centres so that they become much more civilized. I don't see going back to the Arcadian myth of small towns as a realistic solution to the kind of path we are on."

Colin Macfarland Environment Ontario's air management branch: "For those of you who have encountered a rendering plant in Ontario, you will understand the gross offense that it causes and for those of you who haven't encountered a rendering plant, then I hope good fortune continues to smile on you."

Dave Bartlett, Canadian Commission for UNESCO: "It doesn't take high technology to destroy the environment. When Alexander the Great . . . crossed the Himalayas, 2,000 or more years ago, the land was a green and pleasant land. It was wooded. And now much of it is a barren desert. The technology that accomplished this particular environmental change was, quite simply, goats."

RAP SESSIONS

A barrage of concepts and opinions in conflict touched off serious discussion and heated debate in rap sessions in the rooms and halls of the conference area.

And the students tossed out ideas of their own, from the anonymous writer to the daily conference paper who called for women panelists, to the Toronto student, Lorne Cutler, who argued:

"One of the main problems with the fight against pollution is that we may allow it to become merely the impetus for the start of the anti-industrial revolution and if this is allowed to happen, man will be doomed to an existence of servitude and poverty."

John Sullivan of University of Western Ontario, chaired an energy panel. In the hot seats for student questioning were; Ernie Siddall, Atomic Energy of Canada, Ltd., Ray Shaver, Petroleum Association for the Conservation of the Canadian Environment, Philip Read, federal Department of Energy Resources, Michael Booth, Ontario Hydro, and Earl Werner, General Motors of Canada, Ltd.

The final formal presentation was by Robert Uffen, a member of the Club of Rome, who presented an unemotional view of the grim forecasts in the Doom Debate—the growing fear that man is racing towards exhaustion of earth's resources.

But the ideas and the arguments generated at Straight Goods III continue in secondary schools across Ontario.

Legacy photographs by Huck Heerema, Bill Dodds

VIDEO COVERAGE - STRAIGHT GOODS

If your school or organization has access to one-inch IVC videotape equipment, you have the opportunity of seeing first hand how Straight Goods III functioned. We've taped a half-hour seminar involving students and resource people who participated in the conference.

If you're interested in the tape, write Educational Resources Co-ordinator, Information Services Branch, Ministry of the Environment, 135 St. Clair Avenue West, Toronto, Ontario M4V 1P5. The necessary arrangements will be made to have the tape shipped to you.

The lecture hall atmosphere vanishes as discussion groups form.

Wes Williamson of the Ministry's waste management branch concentrates and a student ponders.

Global search for auto answers

After much discussion and many hearings, the auto industry has managed to persuade the Environmental Protection Agency in Washington to hold off for one year enactment of the strict 1975/76 control rules.

The big problem was—and still is—the industry's inability to make catalytic mufflers work satisfactorily in the time allowed. To date there are only three companies—all foreign—that have proven their engines can indeed measure up to the '75 requirements.

Honda, with its compound vortex controlled combustion engine, has passed these requirements without the use of catalytic converters, and says it is ready to mass-produce cars with this kind of powerplant.

Toyo Kogyo, makers of Mazda automobiles, have passed the requirements with their NSU/Wankel rotary engine, which uses a thermal reactor. Durability of this reactor, which functions in the 800-900 degree range has proven satisfactory over the required 50,000 mile test.

Daimler Benz' diesel-powered Mercedes sedan has also passed the 1975 requirements quite handily, but Friedrich van Winsen, director of passenger car design and development for the firm has added a few cautions relating to the diesel-powered car as daily transportation. "The problems of acceleration, smoke, particulates, odor and noise still exist. The diesel engine is as it has always been, a supplementary power source . . . not the much sought-after simple solution to the automotive emissions problem".

So here we have the situation that so far, only the European and Japanese makers have been able to come up with solutions to the EPA's future rules, while the domestic makers insist that they have not the time or technology to find solutions.

Obviously, the U.S. government is not disposed to let the foreigners walk in and take over the huge U.S. car market. Such a move would mean political disaster for the government that would go so far as to try to implement it.

CVCC DATA

Honda insists that its CVCC system can be adapted to any engine, regardless of size (the Honda power plant that passed the standards is fairly small, about 120 cubic inches, while the average domestic V8 ranges anywhere from 300 to 500 cubic inches). Honda also claims that performance characteristics of cars using the CVCC engine are quite satisfactory, with no sacrifice in fuel economy. Honda's case is pretty strong, and it appears that the domestic makers will become more interested in CVCC as time goes on.

Clearly, catalytic mufflers have not been proven to work at all well, and when their cost and maintenance is considered (assuming that they might be made to work some day), they come off badly in comparison to the above methods. The major makers have found it impossible to meet the 50,000 mile operating life set down for catalytic systems, and Chrsyler Corporation currently has a test fleet in use in California in order to evaluate these convertors in daily-use situations. Plainly, the domestic industry is not convinced—through experience—that catalysts can be made to work.

OTHER METHODS

Hard on the heels of the Honda, Mercedes Benz an Toyo Kogyo announcements, there have been a few developments in the area of thermal reactor design. The National Aeronautics and Space Administration, at its Lewis Research Center in Cleveland, Ohio, has designed a thermal reactor which converts carbon monoxide and hydrocarbons into harmless water vapor. The interior lining of this reactor is made of ceramic materials which do the job very well, but have one shortcoming. Because the ceramic material is brittle, it could be damaged by road shocks.

A special corrugated metal spring has been developed to keep the liner away from the metal reactor wall, much the same method once used on prototype nuclear rocket nozzles.

The Ethyl Corporation has said that the total savings by motorists would run to roughly $13.2 billion a year if the slightly modified California regulations were adopted and a lean thermal reactor were used in place of the highly expensive dual catalyst systems now being so heavily favored by the EPA. The system being promoted by the Ethyl Corp. would have a total cost of about $216 in hardware, maintenance and fuel penalty costs, compared to the estimated $1,165 for the dual catalyst approach. Even when equipped with exhaust gas recirculation, the lean thermal reactor system would cost the motorist $765 less for the three categories just mentioned.

The variations are endless on the auto emissions control scene, and there is obviously not only one solution to the problem. It seems fairly certain that within a number of months one will have to become the accepted method.

The cost to you

There is no valid reason why Canadians should follow an automotive pollution ruling in force in another nation.

For one thing, there exists nowhere in this country the kind of geographical and climatic situation that leads to the concentration of photochemical smog such as in the Los Angeles basin. The Los Angeles area has the highest per capita car population in the world, and this combined with the foregoing conditions has led to serious smog problems.

As a result, the environmental protection administration in the USA has set acceptable levels based on this problem. The Canadian federal government has seen fit to follow along American lines without regard for Canadian conditions.

RUBBER STAMPS

The Province of Ontario does not agree with this rubber stamping of U.S. regulations. It feels that with the efforts expended so far in pollution controls and the gradual removal from the road of older, uncontrolled cars the ambient amounts of pollutants will drop to the point where expensive additional controls will be redundant, constituting a needless expense on the part of both the motorist and refiner.

It hardly needs to be said that a car in Wawa, Ontario needs the added burden of $500 in the price tag to pass as acceptable in downtown Los Angeles or New York. But this is exactly what Canadian drivers are faced with, come 1975/76.

The financial picture for the average new car buyer three years hence is going to be a shock, based on information compiled by the automobile emissions section of the air management branch of the Ministry of the Environment.

The reason? Tremendous costs involved in both equipment and the changeover to unleaded fuel.

When catalytic mufflers become the accepted method of further reducing auto pollutants the cost of changing them (every 15,000 miles) will be about $200, or approximately $160 per year. Based on the present cost of gasoline there will be an added fuel penalty of $60 per year, or 15 per cent. Maintenance, repair and replacement of the complicated control systems (as well as catalytic mufflers) would involve a further $50 to $100 a year.

Costs of $113 have already been added to 1973 cars to cover the cost of existing control equipment. Compliance with the 1975 standards for CO and HC has been estimated to add a *further* $293 to the cost of a car and an added $180 would be required for the control of oxides of nitrogen for the 1976 standards.

$500 TOTAL

This means a total of $480 for compliance with the 1975/76 standards, or an accumulative total of $593 added to the basic price of a new car . . . this in addition to the foregoing maintenance and repair costs.

What it all boils down to is that the motorist will have to bear the brunt of these costs and at the same time pay an estimated *4.5 cents more* for each gallon of gas due to costs to the refineries for changing over to unleaded gasoline production and distribution.

The average gas station will have to pay $6000 less interest to alter its pumping systems, tanks, etc. Machinery used to pump leaded fuel will of course have to be scrapped because of residual lead deposits. This represents a total loss, because this equipment could normally be sold for about $1,750.

As the result of the continuing dialogue and strong reaction, not only from manufacturers but the public, Jack Davis, Minister, Environment Canada, has announced that his department will be "re-evaluating" the U.S. rulings on the subject. This of course does not necessarily mean that Canada will hew its own path in the emission control scene, but it could indicate some fundamental changes in thinking at the federal level.

In Canada, more questions

Though no hard and fast decision has yet been forthcoming from the federal environment minister, the talk still is that Canada may take her own path in automotive emission regulations.

There are problems in several areas, all of which could become quite thorny before we get to the year 1976.

Chrysler Corporation feels that it can make the '75 standards without catalytic converters, but will need them to meet the '76 standards.

General Motors says that it will need catalytic mufflers to meet the '75 standards, as well as any more standards that are enacted.

Catalytic converters using the current acceptable materials will have to operate on low lead gasoline (no more than 0.05 gm. of lead per gallon, compared with a typical 2.5 gm. per gallon for leaded gasoline).

High octane levels in gasoline can be reached without tetraethyl lead, but only with the substitution of branched and cyclic hydrocarbons. Taking this route will prove so expensive that unleaded gasoline will be expected to be low octane fuel. To operate on low octane fuel, a car needs a low compression ratio and certain other engine alterations, particularly valve and electrical timing.

High compression cars currently operating as the bulk of the current car population need reasonably high octane fuel . . . under present conditions, leaded fuel.

CATALYST PROBLEMS

From this point in time, it may well be that Canadians will have to accept converters if they want them or not, at least in the case on General Motors, who insist that their products will have to have converters to meet the standards. Chrysler and Ford cars will very likely come to Canada without converters in 1975. For 1976, even Chrysler, it is said, will be turning out its cars with catalytic converters for the U.S. market.

It's a matter of economic feasibility whether or not Chrysler Canada will go so far as to build cars on two separate assembly lines . . . one for Canada and the other for the USA. It all boils down to the $100 savings on the equipment in question. The engine would differ in several ways from the U.S. version, as a catalytically equipped engine would have several alterations to timing, carburetion etc. In the long run, these economics may well dictate that Canadians buy cars fully equipped for 1976 US standards.

REMOVAL DOUBTFUL

The question of simply unbolting a converter has been raised.

It's not as easy as it sounds.

These converters will not be tacked on as afterthoughts, they will be designed to work with the rest of the engine components. Some changes in carburetion and timing will have to be made if a converter is removed, but this will not necessarily mean that the car will then meet the 1975 standards, which it is assumed will be in effect in Canada. Some cars will have converters mounted in unit with the engine block to take advantage of engine heat for higher operating temperatures, generated at a faster rate. These will be very difficult to remove or bypass without radically altering engine performance.

LEADED FUELS

Canada may well have to eventually set up a dual-fuel system, if she decides to follow her own emission rules. Catalytically-equipped cars cannot use leaded fuel; the lead destroys the catalyst materials. However, imported cars built for the Canadian market will logically come in with engines designed to operate with leaded fuel, and a large number of aging cars with high compression engines will be on the road for the next several years.

TOURIST TRADE

A side issue is the fact that millions of American tourists come to Canada each year, and if by 1975/76 many of their cars have catalytic systems, they will have to have unleaded gasoline. If there is a general unavailability of this fuel, the country will lose a substantial amount of tourist dollars.

OUTLOOK

Regardless of what is or is not adopted, the overall amounts of hydrocarbons, carbon monoxide, and nitrogen oxides will slowly drop over the next few years. These levels may be a trifle higher in Canada, but not by a wide margin (considering the fact that imported cars will be built to Canadian standards and a proportion of U.S. cars come here with detachable converters). Lead emissions will also show a drop, as more domestic cars after 1975 will be using unleaded gasoline.

In Russia, a beginning

Russia is taking hesitant steps to control air pollution from the gradual increase in the number of automobiles in the streets of the nation's cities. From the Moscow Central Automobile and Automotive Research Institute comes the announcement of a device to reduce carbon monoxide emissions from 25 to 40 percent. The gadget, to be installed on all new Russian-made cars, is a simple cutoff which blocks fuel and allows air into the engine during deceleration or idling.

Pollution patrol takes off from Island Airport on regular flight.

The pollution-watchers

It's now almost impossible for a ship on the great lakes to dump anything over the side without being spotted in the act. Regular patrols by Canadian coast guard aircraft or U.S. planes are now part of both governments' efforts in tracking down polluters of these international bodies of water.

In the Toronto area, a spot check patrol is performed in a light aircraft based at the city's island airport. Operated by the Toronto Harbor Commissioners, and flown by David Balfour, the plane's patrol area stretches from Clarkson in the west to Ashbridges Bay in the east, a distance of about 20 miles, one way, and from shore to five miles out.

From an elevation of 1500 feet, Balfour constantly scans the waters around the harbor on the lookout for telltale signs of oil spills, dumped waste or other polluting materials. This scrutiny is not confined to ship traffic; industrial pollution, a common problem in the patrol area, is also checked from the small aircraft, and if possible, the site of origination is pinpointed, first from the air and then on the ground by inspectors.

NOT FOOLPROOF

It's not a foolproof system, however. One day, a dark smudge was spotted in the water off the Shell Oil Co. refinery at Clarkson and a call went to Environment Ontario's industrial wastes branch. A further call to Shell sent company personnel scurrying out to check the area. All they found was a mass of weeds. Later the same week, Shell did have a small oil spill, but company staff attacked it quickly and cleaned it up. These days, oil companies are sensitive about spills, and don't like the negative public image attached to such accidents.

All the best equipment in the world won't guarantee there won't be an oil spill, as long as there are a few faulty couplings and careless operators. Much of the oil pollution is the result of slow accumulation from the roads, industry and railway switching yards. It tends to stay in one place until a heavy rainfall, and is then flushed into storm sewers, inevitably showing up in a location such as Toronto harbor. These are the slicks that are hardest to trace with any accuracy.

CLEANUP PROCEDURES

In the case of a serious oil leakage, the spill area is surrounded with special herding booms, the oil is scooped or sucked out of the water with machines designed for the job and pumped into barrels. At the mouth of the Don River, special booms are set up after heavy rainstorms to catch the incredible amount of debris flushed down this waterway into the bay. Aerial reconnaissance has never resulted in a conviction against a polluter, but its deterrent effect is worth the time and expense, according to deputy harbor master Richard King.

NIGHTTIME DETECTION

Even the cover of darkness won't guarantee that a ship can dump oil in the Great Lakes, thanks to an invention of the University of Toronto. Called a laser fluorosensor, the device will pick out oil slicks with great accuracy. Not yet tested in an aircraft, the device has been used from shore locations or Lake Ontario. Its designers feel that it could be used in aircraft from 2000 to 3000 feet.

Pulsed ultraviolet radiation from the sensor strikes the oil and reflects back to the machine, where it is interpreted. Oil is a strong fluorescing material, and shows up on the scanner much stronger than the surrounding water due to its different wavelength. Even different types of oil can be pinpointed by the sensor.

GERMAN METHODS

German pollution patrols on the Rhine River have also taken to the air, in this case, in helicopters. Offenders on the waterway are photographed with instant-developing Polaroid cameras, and the pictures are dropped to police patrol boats for fast action. The North Rhine-Westphalia state environmental control laws are thus enforced with speed and efficiency.

Jim Dow prepares for pollution control flight.

Domtar builds ski hill

The city of Cornwall will be enjoying the benefits of a 175-foot ski hill in the future because of a solid waste disposal problem at Domtar Fine Papers Ltd.

The story began when the mill operators were faced with an additional waste disposal problem (there already was a considerable amount of bark from pulp logs). Last January, a new clarifier was put into operation to remove solids from the plant's liquid effluent. There was no convenient location within ten miles of the mill to dispose of this material, so Tom Hall, manager of the mill, found a solution that will eventually prove to be of great benefit both to the company and the community.

"We could have taken our waste bark and other solids and filled a quarry or used it as landfill," he said, "... but it's a step forward when you can do something useful with such material. In this case, we are creating a ski hill on 44 acres of land for the pleasure of the people in the area."

175 FEET

It's been estimated that it will take about 20 to 25 years to build the hill up to its full 175-foot height, but it should be ready for short runs possibly this winter, and certainly next.

Before planning the project, Domtar had to get approval of both Environment Ontario's waste management people for site approval and the local health authority's go-ahead. Local residents were almost solidly behind the hill's construction, and the measure passed 11 to zero in the city council.

Cornwall is in definite need of a recreational installation of this type. Skiers from the area must travel as far as 150 miles into Quebec, or 40 to 70 miles south into New York State to enjoy their sport.

Earthwatch

MOST POLLUTED

The most polluted city in the world appears to be Mexico City, where UNESCO reports "Air contamination is 100 times the tolerable level and breathing is equivalent to smoking two packs of cigarettes a day."

The reasons are numerous. Heavy traffic (1 million vehicles), limited pollution control in industry (cement factories, oil refineries, steel plants) and the setting (a three-sided bowl where winds can enter only through passes north of the city) all combine to dump 4,000 tons of airborne waste each day. In addition, the city's high altitude (7,434) causes extra-large doses of ultra violet rays to combine with pollutants to create smog sufficient to block off the sun at mid-day.

To combat these problems, Mexico has set a May, 1974 deadline for the installation of industrial pollution control devices, with fines of up to $8,000 for violations.

DIGGING INTO POLLUTION

A subway contractor, ordered by a Washington, D.C. health inspector to clear his men out of the tunnel excavation because the air pollution levels there exceeded allowable standards, asked the inspector to turn on his testing equipment at street level.

That's right—the pollution count on the street was twice as high as it was in the air underground.

FUNGUS-FOOD FOR THE FUTURE?

If experiments being conducted at Denver University prove successful, it's possible that at some time in the future you'll be eating a food additive made from a recently discovered fungus that thrives on many forms of waste, from pulp and paper leftovers, grain mill by-products and potato processors to cannery wastes, waste liquids from breweries and even cattle wastes and manure from feedlots.

The soggy mold produced in the experiments contains as much as 50 per cent protein and apparently lacks any toxic substances, making it a potentially ideal human food supplement. It also makes animal food additives comparable to some varieties of soybeans and milk products. If it's approved by federal health agencies, it could well become a food supplement.

With the rate of price increases in certain high-protein foods (meats), it could be that we'll have little choice in the next few years.

Pine Ridge Trail open

The trails movement is becoming a world-wide phenomenon, and the province of Ontario is getting into this rapidly growing recreational activity.

The most recent happening was the formal opening in August of the Great Pine Ridge Trail, a multi-use trail running for over 200 miles from roughly Cambridge to north of Kingston.

Teams of relay riders carrying mailbags of good wishes started on horseback from opposite ends of the trail and met at a cairn marking the central point. Here, a ceremony marking the 100th anniversary of the Royal Canadian Mounted Police was held.

Mrs. Mavis McCullum, one of the moving forces behind establishment of the trail, described years of hard work by people interested in a network of trails that would stretch from Ottawa on the east as far as the Bruce Peninsula on Lake Huron. She said that special efforts were made to design the trail for use by short-time hikers from local cities or for long-distance users. Costs were kept down by using simple cattle-type underpasses where the trail intersected major roads.

The Great Pine Ridge Trail is as yet unmarked but is well on the way to becoming part of a network of wilderness pathways in Ontario.

Riders exchange letters, opening Great Pine Ridge Trail.

EcoLogic

Public's Role

Abatement, restoration and prevention are watchwords that sum up a total program for a healthy environment.

In some ways they can be regarded as steps—three phases in the development of an environmental protection agency.

The first phase is almost always abatement. That gets under way with the realization that a problem situation is upon us. The problem could be a river degraded by inadequate sewage treatment in the municipalities on its banks. It could also be an air pollution problem from industrial sources or automotive traffic. It could even be the growing realization that our society is producing more waste than it should and needs to control this production and develop ways of treatment.

Abatement is the process of control and treatment that copes with the problem.

This issue of Legacy presents information on the other two phases of environmental management. The weed harvesting program in Chemong Lake in the Kawarthas and the experiments under way in Sudbury area lakes are restoration projects—in the Kawartha Lakes, where some waters were overloaded with weeds in Champlain's time, it could even be called improving on nature.

The Green Paper on Environmental Assessment is a step towards improving existing systems of prevention—environmental protection in its truest sense. And this is an area that will call for full public involvement.

It's an opportunity for the citizen who is concerned about his environment to play a part in environmental planning. The involvement of an informed public is an integral part of Environment Ontario's proposals for environmental assessment.

For our own sake and the sake of our children we have an obligation as citizens to play an active, responsible role in determining our environmental future.

"I thought they'd never leave!"

Guest Editorial

In this issue, we're featuring an editorial on recycling from radio station CFPL in London, Ontario. Some of the comments are most timely in the light of recent events.

"Rejasing", continues to interest some imaginative people. The word "rejase", is an acronym for "RE-USING JUNK AS SOMETHING ELSE"; glueing non-returnable bottles together to make abstract sculptures, turning a beer barrel into a leather-slung chair, an old bathtub into a back-yard pool, decorating cheese boxes as foot-stools.

One store sells objects such as telephone cable spools as two dollar patio-tables. An old light bulb makes a handy sock-darning egg, aluminum can pull-tabs can be joined into long jangly curtains, crushed tin cans have become fancy wall friezes, a broken wine bottle can be re-designed as a stunning rose vase, egg cartons can be used to decorate and sound proof walls.

The big benefit of course of rejasing, other than letting you put your imagination to work and saving money, is that such objects never reach the garbage heap. . . . and there can be charm in old discards. Trash can become a treasure.

However, there's a definite limit to such re-use of junk and we are tremendous wasters. Rejasing, re-cycling, composting, whatever, it's hard to imagine that the day will ever come when garbage trucks won't be seen on our streets. . . . or will they? Will science and industry come up with a practical non-polluting home garbage disintegrator and treatment unit? Or will we see the day when waste leaves the home in a pipe, the same way that gas and water reach the home now, and as human wastes are conveyed away.

JAPANESE SCHEME

Japan has decided to experiment with that concept. Faced with increasing pressure on Tokyo's 4,000 garbage trucks and 200 garbage boats, officials there believe that a type of pipeline could be a viable alternative to present collection methods. A consortium of ten companies is preparing to submit tenders for supply of a system to be installed in one prefecture.

The system will consist of a network of vacuum conduits, picking up garbage from chutes at individual hotels, apartment houses and homes and leading to a waste-disposal centre, where ten-ton presses will compact the waste. Experimenters believe that a forced air pipe could be used to complete the transportation system by sending capsules of compacted trash on through another pipeline to a disposal area.

Note, however, that while the system would rid some residential streets of garbage trucks and their noise, a disposal site would still be needed, either for incineration or land-fill. At the moment, 70 percent of Tokyo's garbage goes into land-fill, 30 percent is incinerated.

It will probably be a long time before major Ontario cities will rip up their streets to install garbage pipelines.

Published bi-monthly by the Ministry of the Environment, Information Services Branch, 135 St. Clair Avenue West, Toronto 195, Ontario for those interested in the many facets of environmental enhancement. Reproduction of articles authorized without further permission.

Editor . . . . . **William M. Dodds**
Director of Information Services . . . . . **M. F. Cheetham**

Man blamed for disasters

There is evidence that man's activities are affecting the world's climate to such a degree that such catastrophies as the sub-Sahara droughts and the recent major floods can be traced to man's tampering with nature.

There are signs that the polar ice caps are beginning to melt, though this is not so serious in the antarctic regions. If this does happen, the world's seas will rise and inundate every major seaport, as well as affect the world's climate. This will of course take place over many, many years, but the results would be socially and economically disastrous, according to Maurice Strong, the new Canadian director of the United Nations environment program on the occasion of the opening of the agency's new 16-storey headquarters in Nairobi, Kenya.

EFFECTIVE ACTION

"The doomsayers have not made their case convincing enough." he said, "but all the evidence to me from sober sane scientists makes me think that such cataclysms are possible".

He went on to say that the scientists were pessimistic, but felt the situation could be controlled. Effective action was going to be more difficult, taking more sustained wisdom than the much starker decision for man to blow himself up with nuclear weapons.

Doubt was expressed whether the world can handle a population growth double or triple the present three billion in 30 years. Food crises, natural disasters and mass illness might intervene as the results of the planet's inability to cope with man's depredations.

MEETINGS

Over the next two years, there will be meetings with the chemical, automobile and pharmaceutical industries, focussing on the pollution problem. There would also be meetings with steel, petroleum, pulp and paper and farm industries. Other major thrusts will be aimed at land erosion, the loss of arable land, protection of the destruction of existing plant genes by one-crop economics and coping with the fact that diseases such as cholera are making a comeback after a long-dormant period.

It's appropriate that this new agency should be headquartered in Kenya. This part of the world is generally recognized to be the birthplace of man, and it's possible that solutions to man's ultimate survival may be found there.

ATV study moves north

The all-terrain vehicle, especially the snowmobile, has been getting increased attention from the public in the last few years, mainly because of its effect on the environment (noise, destruction of small trees, litter). For this reason, a select committee on all-terrain vehicles has been formed by the Ontario government, with Alex Carruthers, MPP for Durham, as chairman.

The committee will examine problem areas associated with such machines and also will investigate other forms of ATV's, including hovercraft and multi-wheeled off-road vehicles.

The committee held public meetings throughout the summer and will travel as far as Inuvik to investigate the hovercraft, an air-cushion vehicle suited to use over water, swampland and open spaces. The hovercraft could eventually see extensive use in the north due to the vast open spaces between settlements.

Letters to Legacy

Dear Sir:

I would like to distribute Legacy on a regular basis to the members of our Environmental Control Committee as I think the articles that are written are most informative.

I have dealt with the Ministry of the Environment not only as Mayor of the City of Cornwall but as the President of the Ontario Soft Drink Association and I am tremendously impressed with the stories which appear in your periodical.

I would like to extend sincere congratulations to you and the members of your staff for the excellent material which you provide in each edition. It is certainly very catalytic and provides a municipality with much food for thought in their own programs.

Sincerely yours,
Edward C. Lumley,
Mayor.
City of Cornwall

Dear Sir:

I commend your department for the publication of the tabloid—"Legacy". I find the contents very interesting and informative.

At this time when one is deluged with negative reports on the state of the environment, it is re-assuring to know that some real progress is being made in attempts to improve the ecology of our beautiful province.

I shall bring these issues to the attention of my senior teachers and pupils.

Yours truly,
Cecil Martindale,
Principal.